

## Center for Young Women's Health

Health information for teen girls around the world



Children's Hospital Boston

### Sports and Menstrual Periods: The Female Athlete Triad

Today, more and more adolescent girls and young women are taking part in many different sports. As a result, they are healthier, in better shape, and more active. Being active improves cardiovascular (heart) fitness, bone strength, and overall health.

Most girls who play a sport have regular menstrual periods. Girls who are very active may even skip a few periods. However, some girls who train really hard may skip many menstrual periods, or they may get their period at a late age, especially if they have lost weight or have developed an eating disorder. Girls may begin to skip periods if they are not getting enough nutrition, or if there is too much stress on their body from sports. This stress lowers estrogen levels, which may cause skipped periods. Low estrogen levels and a lack of menstrual periods can lead to osteoporosis (weakened bones) and stress fractures (small cracks) in your bones.

#### What is the Female Athlete Triad?

Recently, doctors, athletes, and coaches have used the term "Female Athlete Triad" (triad means three) to refer to athletic girls who have the following:

1. Disordered eating: Disordered eating means that your body is not getting healthy nutrition. You may be focusing too much of your time on eating, diets, and keeping thin. Some girls

don't eat enough healthy fats in their diet. Healthy nutrition is needed to have regular periods and normal estrogen levels. If you lose weight, you are especially likely to skip periods. There are two common eating disorders related to the Female Athlete Triad. They are:

- *Anorexia nervosa*: This eating disorder happens when not enough calories and nutrition are taken in to maintain a healthy weight.
- *Bulimia*: The practice of binge eating (eating too much uncontrollably in one sitting) and then purging (vomiting, exercising intensely) to get rid of the food just eaten.

When a girl or young woman with anorexia nervosa or bulimia does too much exercise, she is putting an extreme strain on her body. Even eating regular amounts of food may not be enough for a very active person to maintain a normal weight.

2. Amenorrhea: This is defined as the absence of menstrual periods for longer than 6 months. This lack of menstrual periods can happen when there is weight loss, disordered eating, or intense training or exercise. A certain percentage of body fat is healthy for the body, and girls will stop their periods if their weight drops to an unhealthy level. Having your period only every 2 to 3 months or very light periods is a sign that you may be pushing your body too hard.

A healthy weight is especially important for you to have normal levels of the female hormone, estrogen. Normal levels of estrogen are important for your body to absorb calcium (a mineral your body needs to build strong bones). Not enough estrogen can cause your bones to lose thickness and strength.

3. Osteoporosis: This is when your bones are weaker than they should be. Although physical activity helps to build a healthy skeleton and strong bones, too much exercise can cause problems if you are not having regular periods and normal estrogen levels. Everyone, teen girls especially, need the right balance of exercise, body weight, calcium intake in your diet, vitamin D, and estrogen levels to have healthy bones.

### **What health problems can the Female Athlete Triad cause in the future?**

Each of the three conditions (disordered eating, amenorrhea, and osteoporosis) is a serious problem that needs medical care and can cause problems in the future. Even if you only have one or two of the conditions, it is important to talk about them with your health care provider. For example, athletes can be eating a healthy diet and yet still skip menstrual periods and be at risk of osteoporosis.

Disordered eating can cause heart problems such as an irregular heart beat, muscle weakness or fatigue, fainting, and loss of concentration with school work and athletics.

Amenorrhea is a sign that your body is not functioning properly. The biggest concern is that the low estrogen levels may result in osteoporosis.

Preventing osteoporosis is very important for teens. The teen years are the most important time in a girl's life for developing normal, strong bones. Girls should add HALF of the bone mass that they will have for their lifetime during their teen years. Very little bone mass is added after you are 20 years old, and so the teen years are VERY important for getting the right amount of bone for your LIFETIME. Even during your teen years, weak bones and intense exercise together can make it easier for you to get stress fractures. A stress fracture is a very small crack that can occur in bones when you do the same activity over and over for too long. For example, a runner may get a stress fracture in her lower leg or foot, and a gymnast may get a stress fracture in her spine. If you continue to do the activity in spite of the pain, the bone may break.

### **How will I know if I have osteoporosis?**

If you are skipping periods and your health care provider is worried about osteoporosis, he/she may suggest that you have a test that tells whether your bones have lost thickness or strength. One of these tests is called a DEXA, or Dual Energy X-Ray Absorptiometry, scan. It is a painless test that uses low radiation waves to take a picture of your bones. This tells your doctor whether you have more or less bone than other girls your age.

### **Who is at risk for the Female Athlete Triad?**

Any athlete who does a great amount of physical activity is at risk for any of the three conditions of the Female Athlete Triad. Athletes who are very

competitive or focus a large part of their lives on their sport are considered to be at a higher risk. Certain activities that involve a lot of endurance (long distance running, for example) may put you at more risk for the Triad. There is also a higher risk among those girls involved in activities that demand a thin physical appearance, like gymnastics or dancing. Being aware of these demands or pressures on your body is a good first step to keeping yourself healthy. It is important to remember to balance yourself. Too much of a good thing, such as exercise, can become dangerous and harmful to your body. The right balance will keep you healthy.

### What should I do if I'm a female athlete?

- **Give your body enough energy to fuel performance.** During sports seasons, make sure you eat a healthy diet with enough calories to make up for all of your training. Try not to lose weight if you are already a normal weight. Check with your health care provider and discuss healthy weights for you. Make sure you eat a healthy balance of fats, protein, and carbohydrates. Through eating a healthy diet and taking vitamins, make sure you get 1300 mg of [calcium](#) and 400 international units of vitamin D every day to keep your bones strong. Over-the-counter multi-vitamin tablets contain 400 international units, or IU, of vitamin D. See our website at to get facts on how to get enough calcium by eating certain foods or taking supplements.
- **Keep a menstrual calendar.** If you are skipping menstrual periods, see your health care provider. It may be a sign that your body is under too much stress.

- **Don't ignore injuries.** If you develop the same pain in your leg or foot every time you run, the same pain in your back whenever you do gymnastics, or the same pain in any part of your body whenever you do the same activity, you may have a stress fracture. Be sure to get it checked out.
- **Talk to your health care provider.** If you are bingeing, purging, not letting yourself eat, avoiding fat in your meals, or worried about your weight a lot of the time, get help from coaches, trainers, and health care providers. While some problems, such as anorexia and bulimia, may be hard to talk about with someone, the earlier they are treated, the better.

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**Taking part in sports is a great way to be active and to improve your health. As long as you take care of yourself and talk to your health care provider when you have questions or problems, sports will make you a stronger, fitter, and healthier person.**

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